CLAIMS:

1. A device for generating X-rays, which device comprises a source for emitting electrons, a carrier which is rotatable about an axis of rotation and which is provided with a material which generates X-rays as a result of the incidence of electrons, a heat absorbing member arranged between the source and the carrier, and a cooling system which is in thermal connection with the heat absorbing member, wherein during operation a rate of heat absorption by the heat absorbing member is substantially larger than a rate of heat transfer via the thermal connection, characterized in that the thermal connection between the heat absorbing member and the cooling system comprises a thermal barrier which limits the rate of heat transfer, occurring via the thermal connection per unit of temperature difference between the heat absorbing member and the cooling system, in a predetermined manner.

2. A device as claimed in claim 1, characterized in that a heat transfer coefficient $\theta = \phi/P_{max}$ of the thermal connection is smaller than 0,0005 K^{-1}, wherein ϕ (in kW/K) is the rate of heat transfer via the thermal connection per unit of difference between an average temperature of the heat absorbing member and a temperature at a thermal boundary between the thermal connection and the cooling system, and wherein P_{max} (in kW) is a maximal output power of the source allowed during continuous operation of the device.

3. A device as claimed in claim 1, characterized in that the thermal barrier comprises a mounting member by means of which the heat absorbing member is mounted in the device, said mounting member having a dimension, seen in a direction parallel to an electron beam path of the source, which is substantially smaller than a dimension of the heat absorbing member in said direction.

4. A device as claimed in claim 3, characterized in that the heat absorbing member is substantially rotationally symmetrical relative to the electron beam path, and the mounting member is annular and concentric relative to the electron beam path.

5. A device as claimed in claim 3, characterized in that the mounting member is made from a material having a thermal conductivity which is lower than a thermal conductivity of a material from which the heat absorbing member is made.

6. A device as claimed in claim 3, characterized in that the mounting member is made from stainless steel.

7. A device as claimed in claim 3, characterized in that the heat absorbing member has a first side facing the carrier and a second side facing away from the carrier, the mounting member being in thermal contact with the heat absorbing member near said second side.

8. A device as claimed in claim 1, characterized in that the thermal barrier comprises a vacuum gap which is present between a radiant heat transferring surface of the heat absorbing member and a radiant heat transferring surface of the cooling system.

9. A device as claimed in claim 1, characterized in that the heat absorbing member is made from molybdenum, tungsten, or graphite.

10. A device as claimed in claim 1, characterized in that a side of the heat absorbing member facing the carrier has an electron absorbing surface which is concave as seen from an impingement position of the electrons on the carrier.